

CLAIM AMENDMENTS

In accordance with the revised format for making amendments as set forth in 37 C.F.R. § 1.121, amendments to the present claims are made with additions being indicated by way of underlining and deletions being indicated by way of strikethroughs. Additionally, each claim is provided a status identifier in parenthetical immediately following the claim number and indicating the status of the claim as a result of the present response.

1. (Original) An apparatus for the production of fatty acid alkyl ester comprising:
 - a first tank containing naturally occurring fatty acids;
 - a second tank containing an alkaline solution;
 - a third tank containing an alcohol;
 - a reaction chamber for the transesterification of an emulsion;
 - a natural gravity separatory; and
 - a centrifuge.
2. (Original) The apparatus of Claim 1, wherein said naturally occurring fatty acids are animal fats.
3. (Original) The apparatus of Claim 1, wherein said naturally occurring fatty acids are vegetable oils.

4. (Original) The apparatus of Claim 1, wherein said alkaline solution is a concentrated form of one of the group comprising sodium hydroxide, potassium hydroxide, sodium methoxide, potassium methoxide, or other strong mineral alkaline solutions.

5. (Original) The apparatus of Claim 1, wherein said alcohol is one of the group comprising methanol, ethanol, propanol, and other monoalkyl alcohols.

6. (Original) The apparatus of Claim 1 wherein said emulsion is a combination of said naturally occurring fatty acids, said alkaline solution and said alcohol.

7. (Original) The apparatus of Claim 6, wherein said emulsion is transesterified in said reaction chamber.

8. (Original) The apparatus of Claim 7, wherein said reaction chamber comprises:

a first inlet for the introduction of said emulsion;

a first outlet for the removal of a transesterified version of said emulsion;

a cooling jacket containing a pump fed flow of a cooling liquid for maintaining said reactor chamber at a defined temperature; and

a horn.

9. (Original) The apparatus of Claim 8, wherein said horn enhances the transesterification of said emulsion using ultrasonic irradiation.

10. (Original) The apparatus of Claim 9, wherein said horn ultrasonically irradiates said emulsion at specific frequencies of between generally about 20 kHz and generally about 50 KHz.
11. (Original) The apparatus of Claim 9, wherein said horn operates at power densities of between generally about 18 Ws/ml and generally about 65 Ws/ml.
12. (Original) The apparatus of Claim 8, wherein said reaction chamber is maintained at an operating temperature of between generally about 70°C and generally about 80°C and an operating pressure of between generally about 1.0 and generally about 5.0 atmospheres.
13. (Original) The apparatus of Claim 7, wherein said natural gravity separation operates to separate said transesterified emulsion into a glycerol solution and fatty acid alkyl ester.
14. (Original) The apparatus of Claim 13, wherein said fatty acid alkyl ester is introduced into said centrifuge for washing and drying, wherein said washing and drying involves the removal of traces of the catalyst, residual alcohol, and any remaining glycerol, soaps, and excess water.
- 15.-35. (Cancelled)